

Spring 2021

HIST 381-H02: Science & Technology in Modern Medicine

Stephen Pemberton

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SCIENCE & TECHNOLOGY IN MODERN MEDICINE

History 381 (Honors)

SPRING 2021 SYLLABUS

Prof. Stephen Pemberton
Federated Department of History
New Jersey Institute of Technology

All class meetings and office hours will take place synchronously online.

Class Meetings

9 AM - 10:20 AM Mondays & Wednesdays

Office Hours

Wednesdays, 10:45 AM – 12 PM, and by appointment.

Prof. Pemberton's Webex office: <https://njit.webex.com/meet/sgp>

Office & Contact

Cullimore Hall 325, NJIT Campus

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This history course examines the critical roles of science and technology in modern medicine by looking at social developments associated with germs, genes, and the body. Readings, lectures, and discussion focus on specific innovations in ideas, practices, and technologies that helped transform Western medicine in the 19th and 20th centuries and render it “modern.” Of particular focus will be the extent to which medicine is or has been scientific; the ways science became vital to the medical and health professions; and the degrees to which the professional cultures of medicine and the biomedical science both mirror and inform attitudes toward the human body in Western society and culture. The lectures and readings will allow us to link interactions between medicine, science and culture to the changing social and political economies of health care in North America and Europe, and analyze a variety of issues, including the growing role of technology in medicine, the integral relationship between medicine and public health in the modern world, the roles of business and government in advancing health care, and the historical effects of specific disease problems for the advancement of science-based healing. Throughout the course, special attention will be paid to how issues of class, race and ethnicity, and gender have impacted cultural understandings of the body, disease and health as well as interactions between medical professionals, scientists, industry, government, and the public.

Learning Outcomes

By the end of the course, students will be able to:

- *Identify* and *correlate* key historical actors and events in North America and Western Europe and how they have shaped and influenced medicine, science, technology, and society across the globe from the mid-nineteenth century to the present.
- *Identify* and *describe* various developments and controversies related to medicine, medical science and technologies of the last two centuries, and *explain* how medical practitioners have approached the challenges of improving the health of individuals and populations for better and/or worse.
- *Describe* and *begin to explain* how scientific and medical developments in a modernizing world are embedded in a social context: meaning that each student will learn that “social factors” such as class, race, and gender not only impact our understandings of the body, disease, and health, but that these features of social experience also frequently impinge upon how medical developments unfold as well as how medicine is practiced (in its dimensions as both art and science).
- *Write* effective essays that *describe* and critically *evaluate* the merits of a certain argument in a specific place and time, even if the vexing issues involved are (in some sense) irresolvable.
- *Demonstrate* information literacy consistent with being an upper-level undergraduate: including (1) locating, retrieving and evaluating information relevant to the writing of a college-level argumentative essay; (2) organizing, synthesizing and communicating that information in clear, persuasive prose; and (3) producing a finished essay that employs principles consistent with the ethical and legal uses of information.

Prerequisites and Honors Credit

Grade C or better in HUM 102 and a 200-level Humanities or History course or their equivalents. This class is an honors class. The student must be enrolled in the Albert Dorman Honors College or have permission from the professor to enroll.

Course Webpage (Canvas)

There is a Canvas webpage for this course that the professor and class will utilize throughout the semester. Please consult this website regularly, preferably at least once before every class meeting. It contains the syllabus, assignments, readings, and other features that will enhance your learning experience this semester. **Canvas access [here](#) with your UCID.**

Class Meetings & Office Hours

Regular class meetings and office hours will take place online synchronously this semester. My office hours are listed on the first page of the syllabus along with the link to my Webex virtual office. Students who wish to meet with the professor individually outside of the class meetings or open office hours are welcome to do so. If you would like an individual appointment, please email me to arrange that meeting.

We will meet using Webex throughout the course. The portal for accessing these regular class meetings can be found through the “Cisco Webex” tab on the Canvas course webpage. To meet the class, login into Canvas first using your UCID, then find the “Cisco Webex” tab within the course page, then choose ‘HIST381 Class’ and press the green “Join” button. Note: The very first time you attempt to login to a class meeting from within Canvas, you may be prompted to register

yourself first via njit.webex.com. After that first-time registration, you should be able to enter the 'Class Meeting' seamlessly from within the Canvas course webpage.

Readings. The required readings for this course include one book and a variety of shorter readings. Students should follow the [semester schedule](#) to determine what readings to complete for each class period.

Short Readings: Short readings are newspaper or magazine articles, scholarly essays, articles, or book chapters. These will be posted on the course webpage as pdfs.

Book: The following book is required reading in this course.

- Rebecca Skloot, *The Immortal Life of Henrietta Lacks* (Crown Publishing Group, 2010) [ISBN # 9781400052189](#)

Copies are available at the [NJIT Campus bookstore](#) or [through on-line booksellers](#). Audiobook and electronic versions can be purchased as well.

Assignments and Grading

The primary goal of this course is to promote critical thinking about medicine and society, both past and present. All students will be evaluated on their written and oral communication over the course of the semester. This requires that you do the reading and writing assignments dutifully. In addition to in-class participation, the student will write two essays and complete quizzes and reading response assignments as designated on the course webpage.

<u>Assignments</u>		<u>Grading Scale for Assignments</u>
Participation	10%	A = 89.5 to 100
Quizzes (n=14)	15%	B+ = 86.5 to 89.4
Reading Responses (n=6)	30%	B = 79.5 to 86.4
Midterm Essay	20%	C+ = 76.5 to 79.4
Final Essay	25%	C = 69.5 to 76.4
		D = 59.5 to 69.4
		F = 59.4 to 0
<hr/> Course Grade		100%
Consistent effort and improvement are weighted heavily in grading.		
Passing this class with a B or higher is unlikely without completing each assignment in a timely fashion.		

Participation

The class participation grade will reflect both the student's presence in the virtual classroom and their consistency and improvement in engaging the subject matter across the course. Students should promptly communicate any concerns about their ability to meet the following requirements with the professor. The participation grade is **10%** of the final course grade.

Attendance Policy. This course is taught online with a university mandated requirement that students attend “synchronously” at the appointed meeting times. Missing even a single class is not recommended. However, each student is allowed to miss three full class periods without penalty to their participation grade. It is highly recommended that you consult with the professor about any missed class time beyond one or two absences. Class time missed beyond the three “excused” classes will result in substantial reductions in the student's participation grade (as calculated as a percentage of formal contact hours for the semester). The professor will consider excusing repeat absences under circumstances that the Dean of Students Office communicates and verifies. See policy on “Student Accommodations” below for further details. Overall, attendance will constitute half of the student’s participation grade.

Student Engagement. The student's verbal and non-verbal engagements with online classroom activities account for the other half of the participation grade. Each student should come to class promptly and regularly, actively listen to the online presentations, and be prepared to ask questions and discuss the readings assigned for the day. Students should respect the learning environment by arriving on time and staying the full term of the session. Students who participate regularly and constructively in discussion will be rewarded with higher grades in their final participation grade. The student must contribute to the learning environment to receive full credit in this area. Meeting the professor in office hours also counts positively toward participation. The professor will also consider improvement and other factors in his assessment of each student’s participation grade, and he reserves the right to award extra credit to students who make substantial contributions to the learning environment.

Quizzes

The professor will evaluate the student’s competency at discussing the readings in writing, in part, by assessing student performance on quizzes (usually comprised of short answer or multiple choice questions). The act of doing these regular quizzes is an important and comparatively easy way for students to see if they are grasping the main subject matter and/or key points from the relevant course reading or class presentation. If (as a student) you receive less than a B on any given quiz, then you should review the material with attention to what you missed. If the correct answers remain unclear to you after your review of that course material, please reach out to the professor for help. Collectively, the quiz grades amount to **15%** of the final course grade.

Reading Responses

The professor will evaluate the student’s competency at discussing the readings in writing, in part, by assessing student performance on reading responses. Each of these assignments will require the student to respond in formal writing to reading-based questions – typically, by answering one or more questions as directed. Collectively, reading response grades will be **30%** of the final course grade.

Midterm Essay

This essay will address a major course theme in the first half of the course. A choice of paper topics and guidelines for the writing assignment will be distributed on Canvas at least two weeks before the assignment is due. The midterm essay grade equals **20%** of the final course grade.

Final Essay

This essay will address a major issue or theme in the course related to the student's reading of the required book, *[The Immortal Life of Henrietta Lacks](#)*. The paper topic and guidelines for the writing assignment will be distributed to the class on Canvas no later than three weeks before the assignment is due. The final essay grade amount to **25%** of the final course grade

Respect for Persons and the Learning Environment

In the interest of an open exchange of ideas and collegiality, everyone participating in the class should strive to respect their classmates as persons. The professor will make every effort to facilitate a respectful environment for learning, but students should keep in mind their own responsibilities in the virtual classroom (just as they do in a physical classroom).

The professor reserves the right to ask you to leave the virtual classroom for any behaviors that do not meet the expectations of a proper, professional learning environment.

Web-surfing, texting and social media usage that is unrelated to class is disruptive of a respectful learning environment. Students are therefore expected to limit cell phone, tablet, and lap top use to class-related activities only during our designated class times.

Academic Integrity and Plagiarism

Academic integrity is *enforced* in this course. Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found [here](#).

It is the instructor's professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

Students are also responsible for upholding the integrity of NJIT by reporting any violation of academic to the [Dean of Students Office](#). The identity of the student filing any academic integrity violation will always remain anonymous.

Tutorials that explain acceptable academic writing for this course are available at the Van Houghton library website, [here](#). The Library also maintains another web page on how to cite sources in your academic writing, [here](#). Proper citation will help you avoid plagiarism. I prefer that students use the author-date citation format from the [Chicago Manual of Style \(CMS\)](#) in their writing for this course.

Tutorials on how to evaluate appropriate online source material can be found [here](#).

Tutorials appropriate to doing coursework in a history class, such as this one, can be found [here](#).

NJIT Librarian David Scharf is the expert to contact to field your questions about how the library's resources can help you succeed in this class. Her contact information is [here](#).

Again, all students are expected to abide by the norms outlined in these websites, this syllabus as well as the course webpage for this class, and students will be penalized for failure to do so. Please consult the professor if you have any concerns about academic integrity, academic reading, writing and citation, plagiarism or their meanings in actual practice.

Students will also be required to submit their original written work to [Turnitin.com](#), an online service used by NJIT instructors to detect plagiarism and irregularities in sourcing and citation of the written word and claims.

All of the above links can also be accessed on the course webpage.

Student Accommodations and Privacy

If a student needs accommodation for illness, disability, death in family, religious reasons, etc., University Policy dictates that the student must inform the [Dean of Students Office](#). Instructors can only accommodate a student at the direction of the Dean's Office, and are not entitled to know your personal circumstances as you have a right to privacy.

Students with disabilities should also contact NJIT's [Student Disability Services \(SDS\)](#) for any necessary accommodations related to their disability [here](#). SDS will communicate your specific needs to the professor, ensuring that your disability-related accommodations for the class and assignments are met without your having to divulge any private health information to the professor or anyone else in the class.

Students who have concerns that might impact their learning experience beyond the issues stated above may identify the nature of that concern with the professor so that he may advise you appropriately. The professor will hold all individual communication with students in confidence.

Semester Schedule

Wed, Jan 20. How Have Science and Technology Mattered to Modern Medicine?

In-Class Reading: Lewis Thomas, “The Technology of Medicine” (6 pages)

Read course syllabus and visit course webpage

Fri, Jan 22. First Assignment Due

Complete Quiz 1

Mon, Jan 25. Anatomical Knowledge and Modern Medicine

Reading: Ruth Richardson, “The Corpse as an Anatomical Object” (22 pages)

Complete Quiz 2

Wed, Jan 27. Anatomical Knowledge and its Social and Political Messiness, 1820s

Reading: Review Richardson, “The Corpse as an Anatomical Object”

Complete Reading Response 1

Mon, Feb 1. William Beaumont, Physiology, and Human Experimentation

Reading: Ronald Numbers, “William Beaumont and the Ethics of Human Experimentation” (32 pages)

Complete Quiz 3

Wed, Feb 3. The Rise of Experimental Medicine

Reading: Claude Bernard, “An Introduction to the Study of Experimental Medicine,” (5 pages)

Complete Reading Response 2

Mon, Feb 8. Hospitalism

Reading: Ignaz Semmelweis, “The Etiology, Concept, and Prophylaxis of Childbed Fever,” (7 pages), and Sherwin Nuland, “The Germ Theory Before Germs: The Enigma of Ignaz Semmelweis” (25 pages).

Complete Quiz 4

Wed, Feb 10. What is Germ Theory I?

Reading: Louis Pasteur “On the Extension of Germ Theory to the Etiology of Certain Common Diseases;” and Rom Harré, “Louis Pasteur: The Preparation of Artificial Vaccines.” (21 pages total)

Complete Reading Response 3 (On Hospitalism)

Mon, Feb 15. What is Germ Theory II?

Reading: Joseph Lister, “On the Antiseptic Principle in the Practice of Surgery;” and Robert Koch, “The Aetiology of Tuberculosis.” (21 pages total)

Complete Quiz 5

Wed Feb 17. How Germs Mattered for Medicine and Surgery: Radical Mastectomy

Reading: Barron Lerner, “Establishing a Tradition: William Halstead and the Radical Mastectomy (25 pages)

Complete Quiz 6

Mon, Feb 22. How Germs Mattered for Public Health: Immigrant Medical Inspections

Reading: Alan Kraut, “‘Proper Precautions’: Searching for Illness on Ellis Island” (27 pages)

Complete Quiz 7

Wed, Feb 24. Heredity, Genetics, & Eugenics I

Reading: Ruth Schwartz Cowan, “Many Varieties of Beautiful Inheritance” (29 pages)

Complete Quiz 8

Mon, Mar 1. Racial Hygiene and Nazi Medicine

Reading: Robert Proctor, “The Sterilization Law,” (25 pages)

Complete Quiz 9

Wed, Mar 3. Diabetes and Insulin

Complete Midterm Essay

Mon, Mar 8. Diabetes, Insulin, and Quality of Life

Reading: Chris Feudtner, “The Want of Control” (25 pages) and review Lewis Thomas, “The Technology of Medicine” (6 pages)

Complete Quiz 10

Wed, Mar 10. Experimental Medicine & Vivisection, 1900-1950

Reading: Susan Lederer, “Political Animals,” (18 pages)

Complete Quiz 11

SPRING BREAK

Mon, Mar 22. Experimental Surgery in Jim Crow America

Complete Reading Response 4 (Choice of Topic)

In-Class Movie: “Partners of the Heart: A Black Genius, A White Surgeon, A Blue Baby, and a Miracle”

Wed, Mar 24. The Relevance of Race and Gender to Clinical Innovation

Reading: Sherwin Nuland, “The Triumph of Twentieth Century Medicine: Helen Taussig and the Blue Baby Operation” (35 pages)

Complete Quiz 12

Wed, Mar 24. Honors Colloquium with Prof. Melissa Creary (230-4 pm)

Extra Credit Assignment

Mon, Mar 29. The Tuskegee Syphilis Experiment: A National Tragedy in Slow-Motion

Reading: Allan Brandt, “Racism and Research” / Susan Bell, “Events in the Tuskegee Syphilis Project: Timeline” / Primary Sources from Susan Reverby’s *Tuskegee’s Truths* (about 50 pages)

Complete Quiz 13

Wed, Mar 31. The Tuskegee Syphilis Experiment: A National Tragedy in Slow-Motion

Complete Reading Response 5

Reading: Begin reading Skloot, *The Immortal Life of Henrietta Lacks*

Mon, Apr 5. The Polio Vaccine

Reading: Continue reading Skloot, *The Immortal Life of Henrietta Lacks*

Wed, Apr 7. Sickle Cell Anemia and the Legacies of Scientific Racism

Reading: Alondra Nelson, “The Spin Doctors” (37 pages)

Complete Quiz 14

Mon, Apr 12. The War on Cancer I

Complete Reading Response 6

Reading: Continue reading Skloot, *The Immortal Life of Henrietta Lacks*

Wed, Apr 14. The War on Cancer II

Reading: Continue reading Skloot, *The Immortal Life of Henrietta Lacks*

Mon, Apr 19. The Immortal Life of Henrietta Lacks

Reading: Complete reading *The Immortal Life of Henrietta Lacks*

In-Class Discussion of Book and Final Essay Assignment

Wed, Apr 21. The Immortal Life of Henrietta Lacks

In-Class Discussion: Skloot, *The Immortal Life of Henrietta Lacks*

Mon, Apr 26. The Immortal Life of Henrietta Lacks

In-Class Discussion: Skloot, *The Immortal Life of Henrietta Lacks*

Wed, Apr 28. The Immortal Life of Henrietta Lacks

In-Class Discussion: Skloot, *The Immortal Life of Henrietta Lacks*

Mon, May 3. Discussion of Course Themes

Mon, May 10. FINAL ESSAY DUE